Harvester Concepts Ltd

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01/2014

HT-Shaver 24VDC Harvester

User Manual

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HT-Shaver-24VDC Harvester

Introduction

Congratulations on the purchase of your *Harvester Concepts Ltd HT—Shaver Harvester*. This machine is of high quality and will reward you with reduced effort and greater efficiency in your harvesting.

Learning to operate your *HT—Shaver* won't take long. You will soon find it to be an invaluable tool.

Important Safety Note

Read and understand all the instructions before using the *HT-Shaver-24VDC*

- The HT– Shaver should only be used for the purposes for which it was designed. Use it for no other purpose (e.g. it is not a grader blade or battering ram!). We have manufactured the HT-Shaver using quality materials and manufacturing techniques however if faults do occur please have them corrected before you use it.
- Please read the Power Head instruction book before use. Pay particular attention to running in and safety notes.
- Please read this instruction book before use and retain it for future reference.
- It requires only one person to operate the HT-Shaver - keep all others away!
- Immediately after turning the power head off, fit the cutter bar cover. It should be removed last, before restarting the power head.

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Specifications

Cutting height above bed: 10 to 80mm

Flat beds and raised beds

Cut width:- 1200mm

Weight, dry:- 98 Kg fully optioned

Wheel track:- 1000mm

Belt speed:- 21.24m/Min

Dimensions:-

Ready to use:- width 1620mm

Length 2380mm

For Freighting:- On pallet

Approx Kg

1650x1705x850 mm = approx 2.4 m³

Specifications subject to change without notice

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Conditions of Sale and Guarantee

Your *HARVESTER CONCEPTS LTD* product is guaranteed to be free from defects in materials and/or workmanship under normal use and service for a period of 6 months from date of initial purchase.
HARVESTER CONCEPTS LTD'S liability and obligation is limited to problems which *HARVESTER CONCEPTS LTD* acknowledges to be defective under the guarantee conditions either to

- the free replacement or repair (where practicable) at the *HARVESTER CONCEPTS LTD*
premises of any parts returned within the guarantee period

- or shipment of replacement parts to the customer, as mutually agreed to.

Supply of non standard parts or services from other than *HARVESTER CONCEPTS LTD* are not covered under the guarantee conditions unless prearranged, in writing, with *HARVESTER CONCEPTS LTD*
Shipment of product to *HARVESTER CONCEPTS LTD* is the consumers responsibility and cost Guarantee conditions are void for any of the following reasons:-

Abnormal use of the product
Accident damage or vandalism
Modifications or unauthorised repairs to the product or its components
Where component "seconds" have been supplied
Normal wear and tear

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This guarantee is expressed in lieu of all other guarantees expressed or implied and all other obligations and liabilities on *HARVESTER CONCEPTS LTD's* part and specifically excluding consequential damage. *HARVESTER CONCEPTS LTD* makes no guarantee of merchantability or fitness for purpose and is not responsible to any purchaser of its products for any undertaking, representation or guarantee, except those stated in these terms, made by any person, dealer or body corporate selling or dealing with its products in any manner whatsoever.

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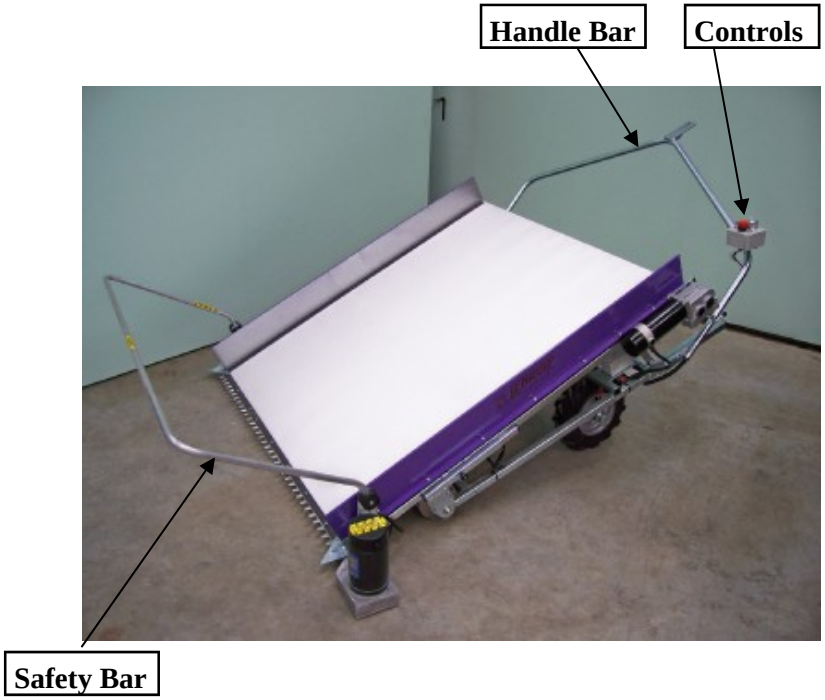
Your HT-Shaver-24VDC Harvester Consists Of:-

- Handlebar frame & safety bar
- Conveyor and cutting head assembly
- HT– Shaver-24VDC instruction book
- Spare fuses (2 fuses - battery charge circuit near charger plug and on control box. There is also a circuit breaker on the RH Battery terminal)
- Battery Charger

Optional

- Bins (Recrate 47 or 75)
- 24VDC self propelled

Please note this manual covers all options—be aware your harvester may vary from instructions shown



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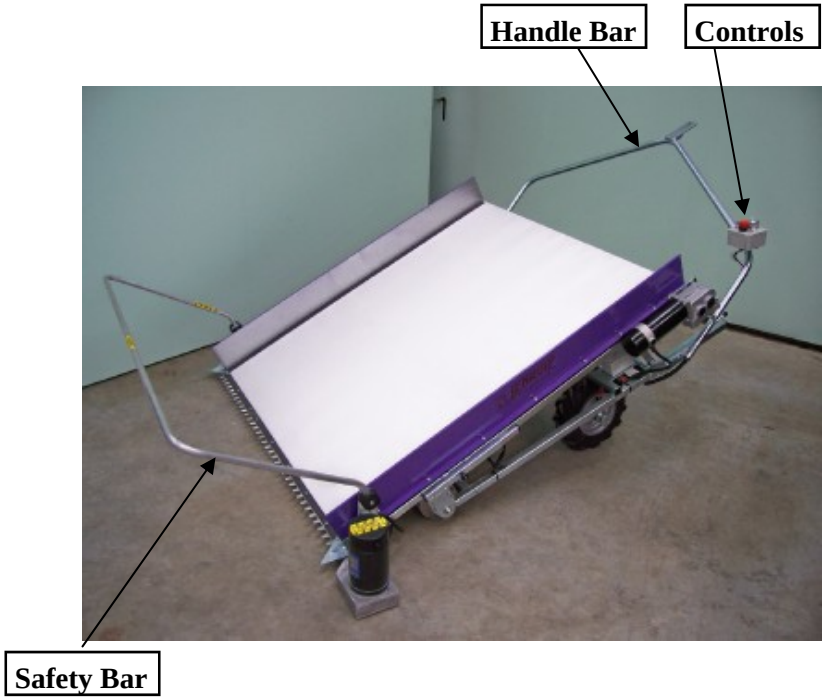

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Uses of the HT-Shaver-24VDC

The HT-Shaver-24VDC is designed for cutting close to the ground. The electric drives make it ideal for use in tunnel houses or confined spaces.

The Shavers ground following roller allows accurate height adjustment. There are various models for flat or raised beds, manual or self propelled. Uses include:-

- **Herb Harvesting**. Cutting the crop to a uniform height and placing the trimmings in the collection bins
- **General Trimming**. Pruning crops to a low height
- **Clean Up.** Cutting and collecting up surplus or old crops before reusing the seed beds

Assembly

- Unpack the harvester ensuring you receive all the parts and that they have not been damaged in transit.
- Layout the components on the ground in their rough position.
- For some versions the wheels may have been removed, take the weight of the conveyor in one hand and insert the wheel axle / frame through the mount hole on the main frame and fit the lynch pin to secure it. Repeat for other side.
- Clip the safety rail into its mounts, ensuring correct way around. Retain with 2 “R” clips. Test that it operates the cut out switch correctly. If it doesn’t , adjust the switch position until it operates correctly before proceeding (see maintenance section)

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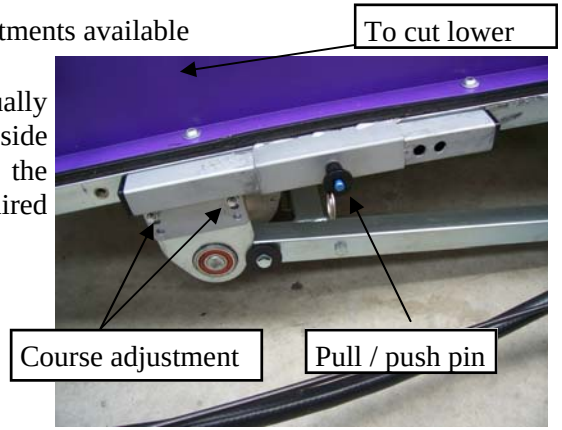
- To fit the handlebars: Be carful not to damage the wiring! Fit the rear bolts first then select handle bar height, align relevant holes and insert front bolts.

- Fit collection bins—they slide / drop into the holders.

Cutting Height Adjustment

There is course and fine adjustments available

Course adjustment is usually preset with the multi position side plates found on each side of the harvester. Spanners are required to adjust these



Fine adjustment is used when harvesting the crop. It is with a pin—in—hole type of adjuster and there is one on each side of the harvester. Push in the blue part and pull out the pin. In relation to the bottom chassis, slide the conveyor frame forward for lower cut height and rearwards for a higher cut. Use the handle on RH rear of conveyor to push / pull the conveyor.

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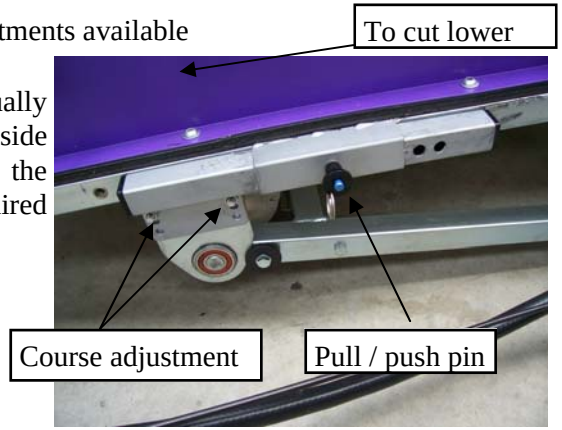

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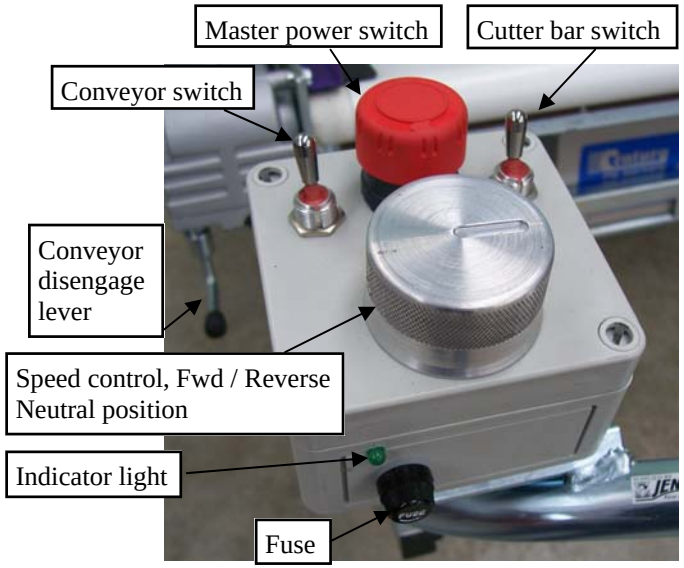
Start Up and Operation

1. Charge the batteries using the battery charger supplied in accordance with the charger operating manual. The charging point is typically adjacent to the right hand wheel

2. The conveyor and cutter bar switches plus the Master power switch should be switched off (push down) and the cutter bar cover fitted before any adjustments are done. **CAUTION:** Do not approach the front of the machine with the cutter bar running. Always switch it off and fit the cutter bar cover.



3. With the cutter bar cover fitted, adjust the cut height as required.

4. Ensure safety bar switch is switched on (pointing rearwards) **NOTE:- If the safety bar is moved rearward it will operate the switch and stop the cutter bar, conveyor and propulsion.**

5. With the speed control knob in the neutral position, twist the master power switch clockwise and release. It will spring upwards to the on position.

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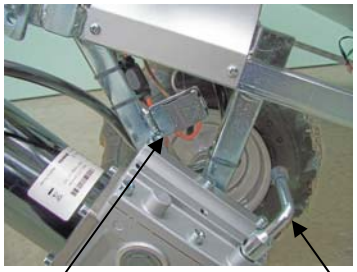

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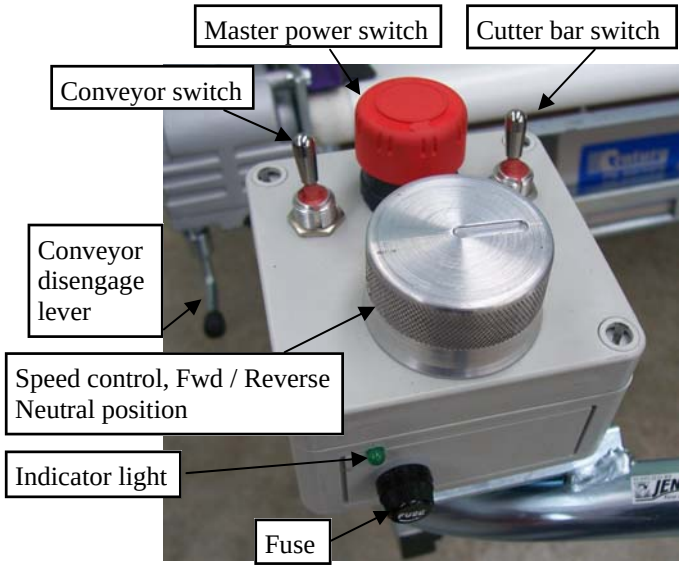

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6. The green indicator light should glow green. If it flashes then there is a problem. The problem will need rectifying, master stop switch turned off, then on again to reset the indication system. First things to check are that the speed control knob is in neutral and the safety bar switch is turned on. If the problem persists, count the number of light flashes and refer to the chart in the maintenance section for rectification

7. The speed control can now be used to propel the harvester to the harvest zone. The drive system can be disengaged with the lever on the drive gearbox (see picture top of page 7). This allows the harvester to be towed or simply pushed along. With the drive system engaged 1 or 2 wheel drive can be selected using the free wheeling hub inside the left hand wheel. Pull knob out slightly and turn 90degrees to engage. Disengaging is the reverse. The harvester may have to be moved a little for the drive to fully engage.

8. With the harvester lined up on the crop, ready to harvest, remove the blade cover.

9. Turn on the conveyor and cutter bar switches. Gradually turn the speed control knob to propel the harvester forward and harvest the crop. **Slow is best until the harvester is mastered!**

10. Monitor the harvest for quality, cut height etc. If anything is not right stop immediately and do not proceed until the problem is rectified

11. **EMERGENCY STOP. At any time the harvester can be stopped by pushing down on the master power switch. All switches should be turned off, blade cover fitted and problems rectified before restarting.**

12. If the safety bar is disturbed at any time (even a big “bounce” can activate it) the harvester will stop. Centralise the speed control knob. The master power switch will have to be turned off / on again to reactivate the harvester.

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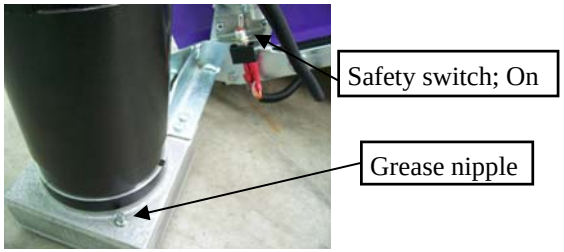


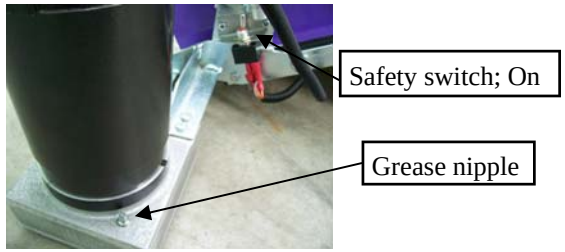
Fault Finding

Harvester will not start

- Check batteries are charged
- Check speed control knob is in neutral position
- Check safety bar switch and master power switch are both on (indicator light glowing steadily)
- Drives engaged?
- Fuse blown?
- Indicator light flashing. Count the number of flashes:-

  Flash

  1. Battery low—recharge
  2. Low battery fault—recharge
  3. High battery fault—overcharged
  4. Current Limit Time Out—due to overloading or mechanical problem. Turn the master power switch off, leave a few minutes and turn back on again.
  5. Park Brake Fault. Also Safety switch circuit—check switch is turned on. Check park brake and associated wiring and plugs.
  6. Throttle out of neutral when turning the system on. Neutralise and restart the system
  7. Speed Limiting Fault. Check wiring and resistor for loose / bad connections
  8. Motor Voltage Fault—Check the motor and associated connections and wiring
  9. Other error. The controller may have an internal fault—check connections and wiring
  10. Push / rollaway Fault. A speed limit has been exceeded. Turn the system off then on again
- Harvester stuck or on too steep a gradient. Manually assist the harvester



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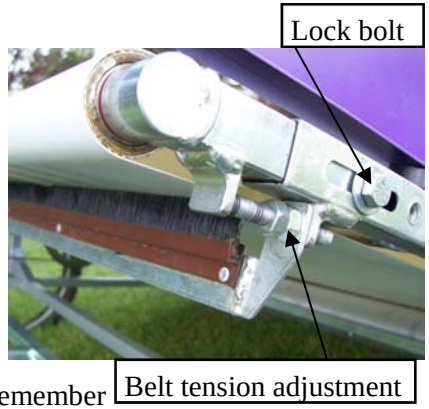


- Drive engaged?
- Conveyor belt too tight. It should only be tight enough to grip on the drive roller without slipping. Before adjusting the belt tension slacken the drive chain tension. Remember that there is a belt tensioner on each side of the machine (left hand one is the motor / gearbox mount). Both tensioners must be adjusted evenly. To adjust—release lock bolt and adjust tension bolt accordingly. Retighten lock nuts and lock bolts.

Conveyor belt loads up / doesn't track correctly—it moves to one side. The belts can move to one side, load up or become stressed if not tensioned correctly

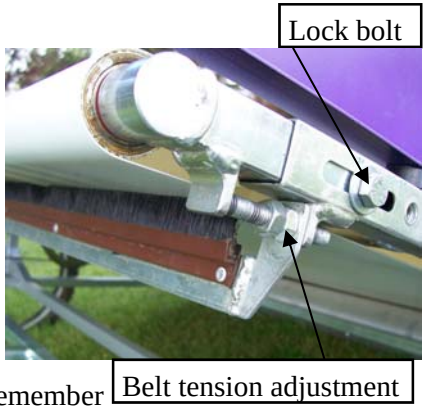
- uneven belt tension. Belt will always move towards the tightest side—slacken it off (see above).
- Build up of material on rollers. The conveyor belt may have to be slackened or removed totally to remove any foreign material. See the maintenance section.

If you require further assistance or spare parts, please call *Harvester Concepts Ltd*

Maintenance

- Wash down the HT-Shaver-24VDC harvester **carefully** after use. Only wash enough to remove dirt. Over washing will lessen the conveyor belt life. It could also induce corrosion or get into the electrics and cause problems. Don't blast water into connections or electrical components. Sealed bearings are utilised but water under pressure could penetrate them.

Conveyor not driving correctly



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  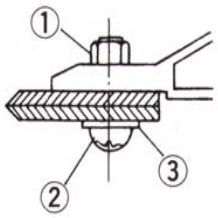

  Loosen nut (1)

  Tighten screw (2) and turn back 1/2-3/4 turn

  Tighten nut (1)

  Lubricate blades, start motor and run blades for 1 minute. Stop the motor and Power Master Switch and carefully touch each nut (2) in turn. If temperature moderate, clearance is good; too hot to touch - readjust turning (2) back a little and retest.
- The cutter bar should be lubricated with a food compatible lubricant every 1/2 hour of operation and before storing. Silicon lubricants can be applied to hinge points, sliding areas etcetera. Lubricate the cutter bar gearbox every 2 hours- use Ochiai original grease. Sharpen the cutter bar if required.
- Apply dry lubricant / oil to all sliding areas
- The Safety bar can be removed for storage or freighting.

To clear contamination from around conveyor rollers you need to:-

- Slacken the conveyor belt. This is done at the RH tensioner and LH motor mount at the top end of the conveyor. Note their original setting so you can adjust back to this later. Slacken belt tensioners and remove belt (remove safety bar, right hand wheel assembly, RH conveyor fence and slide belt off RH side).

- Clean conveyor belt and rollers. Reassembly is the reverse procedure.

Preventative Maintenance

You will become reliant on the harvester to do its job and if a breakdown was to occur you could find yourself in an awkward predicament. We recommend regular maintenance to help avoid breakdowns.

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  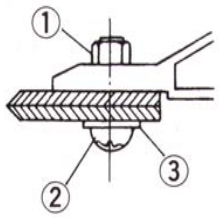

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- The cutter bar should be lubricated with a food compatible lubricant every 1/2 hour of operation and before storing. Silicon lubricants can be applied to hinge points, sliding areas etcetera. Lubricate the cutter bar gearbox every 2 hours- use Ochiai original grease. Sharpen the cutter bar if required.
- Apply dry lubricant / oil to all sliding areas
- The Safety bar can be removed for storage or freighting.

To clear contamination from around conveyor rollers you need to:-

- Slacken the conveyor belt. This is done at the RH tensioner and LH motor mount at the top end of the conveyor. Note their original setting so you can adjust back to this later. Slacken belt tensioners and remove belt (remove safety bar, right hand wheel assembly, RH conveyor fence and slide belt off RH side).

- Clean conveyor belt and rollers. Reassembly is the reverse procedure.

Preventative Maintenance

You will become reliant on the harvester to do its job and if a breakdown was to occur you could find yourself in an awkward predicament. We recommend regular maintenance to help avoid breakdowns.

As well as the maintenance on the previous page we recommend:-

- Check battery terminal condition. Service as required. Inspect all wiring. Any signs of chafing rectify as this could lead to a dangerous situation—short circuit. Apply insulation tape and sealant as required.

- Every 2 months strip the cutter bar nuts, washers and bolts and check for ware. Clean and lubricate blades. Replace parts as necessary.

- Sharpen the cutter bar if required. Always file in the direction of the cutting edge (and lift file off blade to return to start position). Remove as little material as possible. After all filing is complete, remove burrs from the edge of the blade with a slip stone.

- Annually strip the cutter gearbox and clean out. Ensure all traces of water are removed, replace any worn or corroded parts, refill with food grade grease and reassemble.

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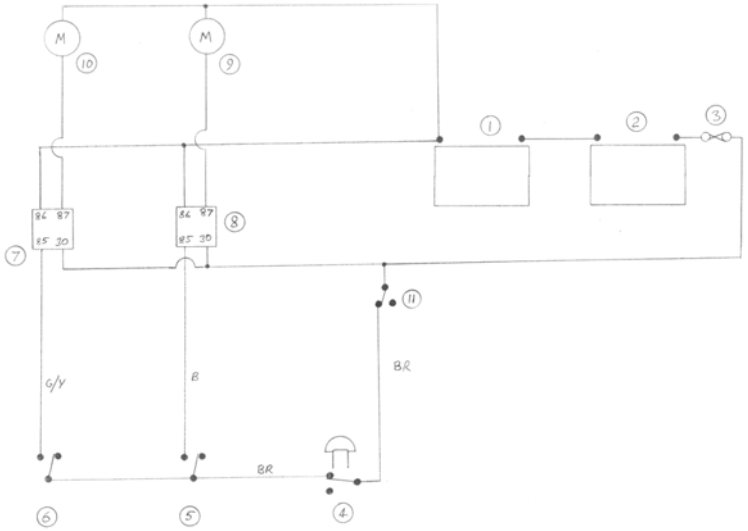
Wiring / Component Diagram

Cutter bar and conveyor circuits



Key:-

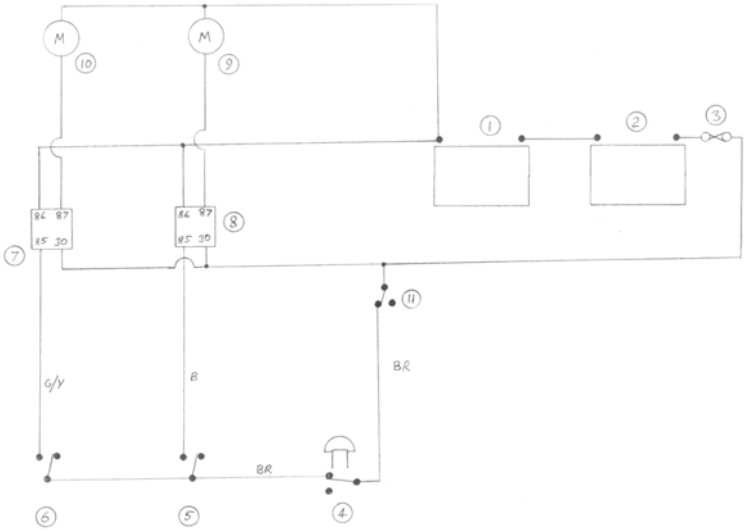
1 / 2 Battery 12VDC, 33AHr
3 Circuit Breaker, 40 Amp. # GCK0011
4 Master Switch. #67623100 + #67625140
5/6 Switch SPST #1138734
7/8 Relay 24VDC SPNO #9913793
9 Motor, Cutter bar. #EBEMPM4-7172509 Series 4 1750 RPM 24VDC
10 Motor / gearbox, conveyor. M6 Left unit. WMT90423 ?
11 Safety Switch SPST # 1138734

Wiring colours:-

B Black
BR Brown
G/Y Green / Yellow

Wiring / Component Diagram

Cutter bar and conveyor circuits



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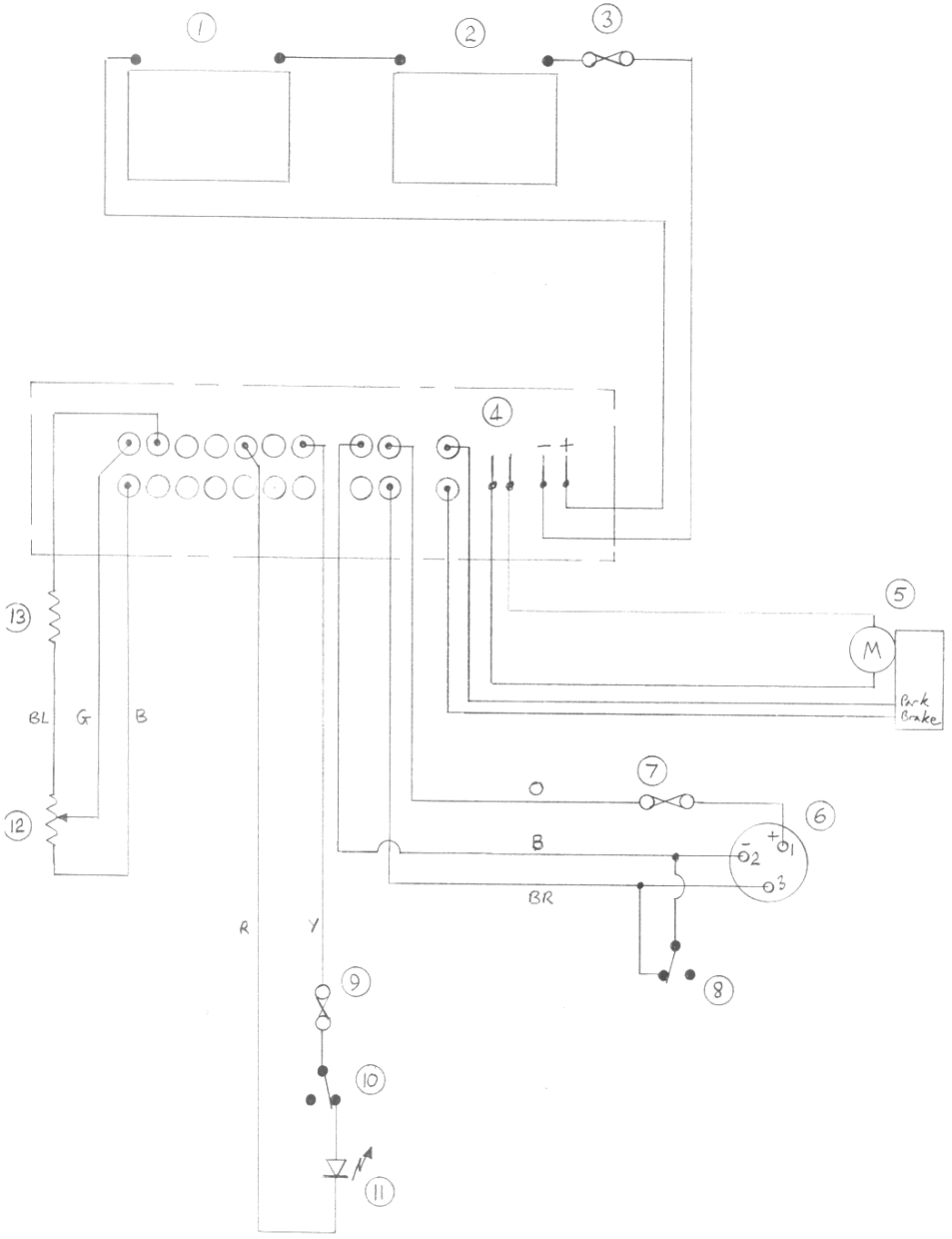
Propulsion System



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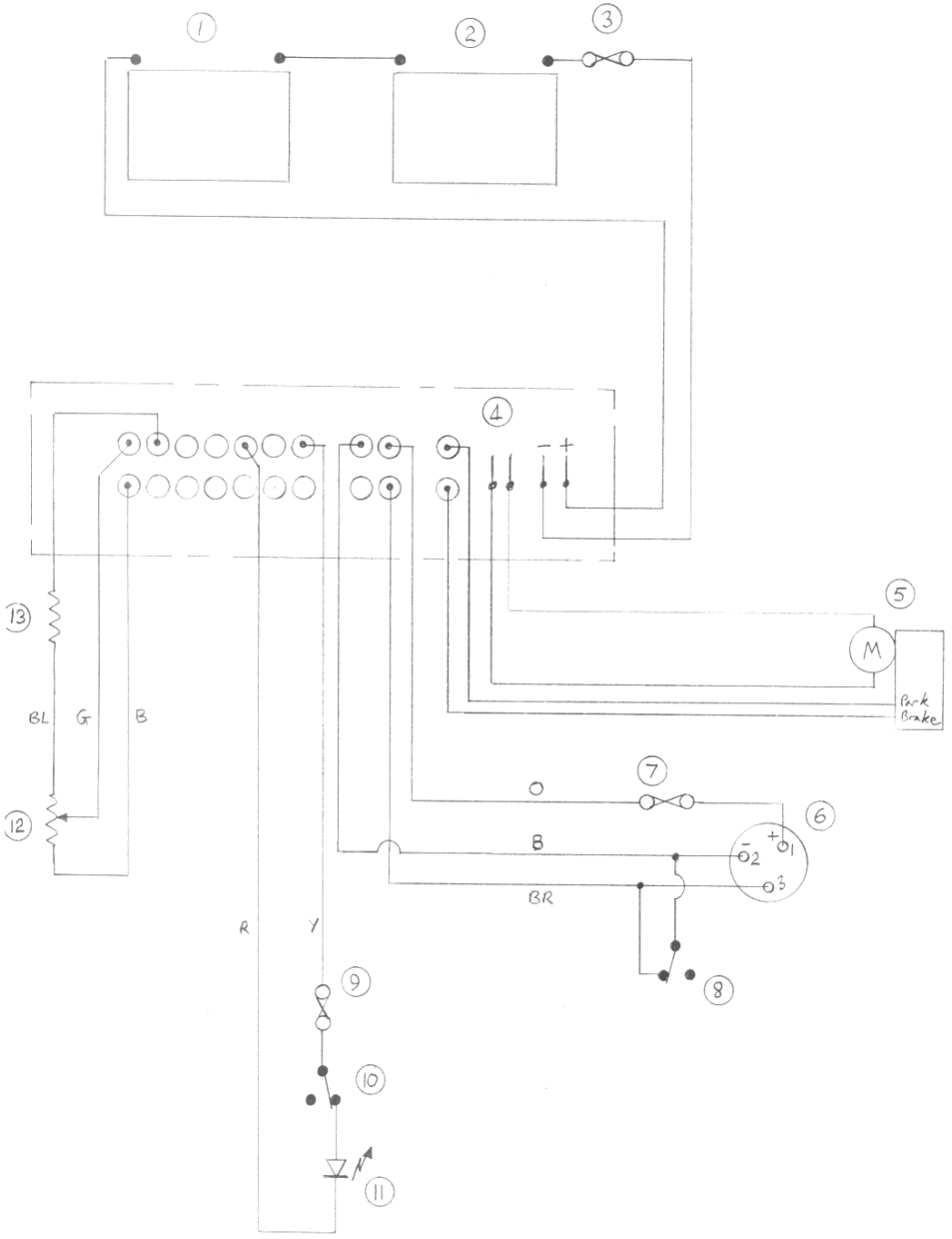

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Key:-

1 / 2 Battery 12VDC, at least 33 AHr
3 Circuit Breaker, 40 Amp. # GCK0011 (for all options: 60 Amp # GCK0014)
4 Controller R series DR50-A01
5 Motor/ gearbox (propulsion) M6 Right, WMT90424
6 Charger Plug / cover
7 Fuse, Charger. Mini fuse 7.5 Amp
8 Safety Switch SPST #1138734 (for all options DPDT #1138736)
9 Fuse, 4 Amp #SF2164
10 Master Switch. #67623100 + #67625140 (Qty 2 for all options)
11 Indicator lamp
12 Potentiometer, speed control. 5K #RP7508
13 Resistor, speed limiting. 820 ohm 1/2 watt

Wiring Colors:-

B Black
BL Blue
BR Brown
G Green
G/Y Green / Yellow
O Orange
R Red
Y Yellow

Key:-

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Freighting

Freighting on the back of a utility vehicle is preferred. The HT-Shaver is very light and if transporting on a trailer it is not heavy enough by itself to make the trailer springs work i.e. it will get badly shaken about. On rough road / tracks this could cause structural damage. One solution is to put a extra weight on the trailer as well as the harvester so the springs actually work!

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